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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAVID SALA PORTA, DAVID SORIANO FOSAS, and JUAN LUIS LÓPEZ RODRIGUEZ

Appeal 2015-005813
Application 13/478,465
Technology Center 2800

Before TERRY J. OWENS, JEFFREY W. ABRAHAM, and MONTÉ T. SQUIRE, *Administrative Patent Judges*.

SQUIRE, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

Appellants[2] appeal the Examiner's final rejection of claims 1–17. 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] In this decision, we refer to the Final Office Action appealed from, mailed April 24, 2014 ("Final Act."), the Appeal Brief dated September 22, 2014 ("App. Br."), the Advisory Action dated March 25, 2015 ("Adv. Act."), the Examiner's Answer to the Appeal Brief dated March 25, 2015 ("Ans."), and the Appellants' Reply Brief dated May 20, 2015 ("Reply Br.").

[2] Appellants identify the Hewlett-Packard Development Company, LP as the Real Party in Interest. App. Br. 1.

The Claimed Invention

Appellants' disclosure relates to a printed circuit board comprising at least one microstrip transmission line that, according to Appellants, is said to have improved protection against electromagnetic radiation. Abstract; Spec. 2, ll. 2–4. Claim 1 is representative of the claims on appeal and is reproduced below from the Claims Appendix to the Appeal Brief (Claims App'x i) (key disputed limitations italicized):

> 1. A printed circuit board comprising:
> *at least one microstrip transmission line, said microstrip transmission line comprising a conductive solid reference plane* and a first signal transmission conductive trace embedded in a dielectric substrate; and
> at least one conductive shielding layer having a lattice structure, wherein the first signal transmission conductive trace is arranged between the solid reference plane and the shielding layer, without presence of another signal transmission conductive trace in a layer between the shielding layer and the first signal transmission conductive trace, and without presence of another signal transmission conductive trace in a layer between the solid reference plane and the first signal transmission conductive trace.

The References

The Examiner relies on the following prior art references as evidence in rejecting the claims on appeal:

Suski	US 5,675,299	Oct. 7, 1997
Lin et al., (hereinafter "Lin")	US 2001/0010270 A1	Aug. 2, 2001
Cugalj et al., (hereinafter "Cugalj")	US 6,646,197 B1	Nov. 11, 2003
Arnold	US 2006/0272857 A1	Dec. 7, 2006
Chang et al., (hereinafter "Chang")	US 2010/0282504 A1	Nov. 11, 2010

The Rejections

On appeal, the Examiner maintains the following rejections:

1. Claims 1–5, 12, 16, and 17 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Suski first and second embodiments. Final Act. 2; Ans. 2.

2. Claims 6, 7, 13, and 14 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Suski first and second embodiments and further in view of Lin. Final Act. 5; Ans. 2.

3. Claims 9 and 10 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Suski first and second embodiments and further in view of Cugalj. Final Act. 6.[3]

4. Claim 11 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Suski first and second embodiments and further in view of Chang. Final Act. 7; Ans. 2.

5. Claim 15 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Suski first and second embodiments and further in view of Arnold. Final Act. 7; Ans. 2.

6. Claim 8 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Suski first and second embodiments, further in view of Lin as detailed in claim rejections 1 and 7, and in further view of Arnold. Final Act. 8; Ans. 2.

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[3] This rejection appears to have been inadvertently omitted from the list of rejections as stated on page 2 of the Answer. *But see* Final Act. 6, 7 (setting forth the Examiner's rejection of claims 9 and 10 under pre-AIA 35 U.S.C. § 103(a) based on the combination of Suski and Cugalj); Ans. 2 (stating that "[e]very ground of rejection set forth in the [Final] Office action . . . from which the appeal is taken is being maintained").

OPINION

Having considered the respective positions advanced by the Examiner and Appellants in light of this appeal record, we affirm the Examiner's rejections for the reasons set forth in the Answer to the Appeal Brief and Final Office Action appealed from, which we adopt as our own. We highlight and address specific findings and arguments for emphasis as follows.

Rejection 1

Appellants argue claims 1–5, 12, 16, and 17 as a group. We select claim 1 as representative and the remaining claims stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner finds that Suski suggests a printed circuit board satisfying all of the limitations of claim 1 and concludes that the reference would have rendered claim 1 obvious. Final Act. 2, 3. In particular, the Examiner finds that Suski's first embodiment teaches a printed circuit board comprising at least one microstrip transmission line and that the disclosed microstrip transmission line comprises a conductive reference plane. *Id.* at 2, 3 (citing Suski, Figs. 7, 8, col. 12, ll. 22–37, col. 11, ll. 3–10). The Examiner finds further that Suski's second embodiment discloses a solid reference plane. *Id.* at 3 (citing Suski, Fig. 14, col. 15, ll. 16–33).

Based on the above findings regarding Suski's teachings, the Examiner concludes that "it would have been *prima facie* obviousness to one of ordinary skill in the art at the time the invention was made to make one of the reference planes solid in order to give control of impedance of the signal conductor." *Id.* (citing Suski, col. 1, l. 62–col. 2, l. 7).

Appellants argue that the Examiner's rejection of claim 1 should be reversed because Suski does not teach or suggest a "**microstrip** transmission line," as required by the claim. App. Br. 5. In particular, Appellants argue that the claimed "**microstrip** transmission line is . . . different from the technology of [Suski's] **stripline** transmission line" and "the Examiner erred in asserting that Figs. 7 and 8 of Suski discloses the **microstrip** transmission line of claim 1." *Id.* at 5, 6. Appellants also argue that "a person of ordinary skill in the art would have found no reason to combine [Suski's] embodiments to achieve the claimed subject matter." *Id.* at 9.

We are not persuaded by Appellants' arguments. On the record before us, we find that a preponderance of the evidence and sound technical reasoning support the Examiner's conclusion and finding that Suski suggests all of claim 1's limitations, including the claimed transmission line as that term is used in claim 1. Suski, Figs. 7, 8, 14, col. 1, l. 62–col. 2, l. 7, col. 12, ll. 22–37, col. 11, ll. 3–10, col. 15, ll. 16–33.

As the Examiner found (Final Act. 2, 3), Suski's Figures 7, 8, and 14 suggest a transmission line having a structure that reads on claim 1. In particular, Suski suggests a transmission line wherein the first signal transmission conductive trace **160** is arranged between the solid reference plane **418** and the shielding layer **120**, without the presence of another signal transmission conductive trace in a layer between the shielding layer and the first signal transmission conductive trace, as claimed. Suski, Figs. 7, 8, 14, col. 11, ll. 3–10, 12, ll. 22–37, col. 15, ll. 3–10.

Moreover, we concur with the Examiner's finding (Ans. 3) that because claim 1 recites conductive layers, i.e., a "conductive solid reference plane" and a "conductive shielding layer," on both sides of a "conductive

trace embedded in a dielectric substrate," it actually claims a stripline transmission line. *Id.* (noting that a microstrip design with a conductive shield on top, as claimed, "effectively creat[es] a stripline"). Appellants' argument exposes no reversible error in the Examiner's analysis and factual findings in this regard.

Appellants' mere labeling or characterization of part of the claimed invention as comprising a "microstrip transmission line" does not necessarily make the entire claimed invention a microstrip transmission line. Moreover, although Appellants argue that their claimed "**microstrip** transmission line is according to a technology that is different from the technology of a stripline transmission line" (App. Br. 5), they do not direct us to sufficient evidence or provide an adequate technical explanation to rebut the Examiner's contrary finding in this regard.

Appellants' reliance on the Specification is misplaced. As the Examiner points out (Ans. 3), the portions of the Specification that Appellants rely on (App. Br. 5) actually support the Examiner's analysis and findings that Suski discloses a structure that reads on claim 1. In particular, the Specification provides that:

> it is known to employ transmission lines with ***microstrip technology, i.e. comprising an asymmetric structure in which a conductive trace is embedded in a dielectric substrate with a conductive reference plane***, such as a ground plane, arranged on one side . . . [as compared to] transmission lines with ***stripline technology, which involve a symmetric structure in which the conductive trace has conductive reference planes on both sides***: the two conductive planes can shield the transmission line from radiation.

Spec. 1, ll. 1–13. As the Examiner found (Ans. 3) and previously discussed above, although claim 1 recites a "microstrip transmission line" as a

component of the invention, the claimed invention, in its entirety, is actually directed to a stripline transmission line as described in the Specification, i.e., "a symmetric structure in which the conductive trace has conductive reference planes on both sides." Spec. 1, ll. 10–13; *see also* claim 1; Spec. 2, l. 26–Spec. 3, l. 12, Figs. 1, 2a, 2b.

The portions of Suski that Appellants rely on (App. Br. 6, 7) are also unpersuasive of reversible error. Contrary to what Appellants' argument suggests, the proper inquiry is not whether Suski "recognizes the difference between a microstrip transmission line and a stripline transmission line" (App. Br. 6). Rather, the proper inquiry is whether Suski would have suggested to one of ordinary skill in the art a printed circuit board which reads on claim 1. As previously discussed above, we concur with the Examiner's findings and conclusion in this regard. Moreover, Appellants do not provide any persuasive reason why Suski's Figures 7, 8, and 14 would not have suggested the printed circuit board recited in claim 1.

Appellants' arguments that the Examiner's proposed modification of Suski "would fundamentally change the principle of operation of the structure" and that "a person of ordinary skill would not have found any reason to combine the embodiment of Figs.7-8 of Suski with the embodiment of Fig. 14 of Suski" (App. Br. 7) are equally unpersuasive because Appellants do not identify sufficient evidence or provide an adequate technical explanation to support them. Attorney argument is not evidence. *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984).

On the contrary, as the Examiner found (Ans. 3, 4), the preponderance of evidence suggests that combining the first and second embodiments of Suski would not change the operation of the structure because changing the

lower lattice structure to a solid reference plane would not alter the structure's functionality and the signal conductors would still be able to transmit signals. Suski, Figs. 7, 8, 14. As the Examiner also found (Ans. 4), the overall structure taught by Suski's Figures 7 and 8 would likewise be unchanged based on Figure 14's suggestion of a solid reference plane rather than a lattice reference plane. Suski, Fig. 7, 8, 14.

Further, we find that the Examiner provides a reasonable basis and identifies by a preponderance of the evidence why one of ordinary skill would have had reason to modify Suski's circuit board to arrive at Appellants' claimed invention. Final Act. 3 (explaining that one of ordinary skill would have been motivated to make one of the reference planes solid in order to give control of impedance of the signal conductor) (citing Suski, col. 1, l. 62–col. 2, l. 7); *see also KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 420 (2007) (explaining that any need or problem known in the art can provide a reason for combining the elements in the manner claimed). Appellants' disagreement with the Examiner's reasoning in this regard, without more, is insufficient to establish reversible error.

Accordingly, we affirm the Examiner's rejection of claims 1–5, 12, 16, and 17 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Suski.

Rejections 2, 3, 4, 5, and 6

In response to the Examiner's Rejections 2 through 6, stated above, Appellants argue that these rejections should be reversed for the same reasons presented above in response to Rejection 1, stating that:

> In view of the allowability of base claim 1 over Suski, the obviousness rejection of dependent claims over Suski [and the additional cited prior art] has been overcome.

App. Br. 10, 11.

We do not find Appellants' argument persuasive for the same reasons discussed above in affirming the Examiner's Rejection 1.

Accordingly, we affirm the Examiner's Rejections 2, 3, 4, 5, and 6 stated above.

DECISION/ORDER

The Examiner's rejections of claims 1–17 are affirmed.

It is ordered that the Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED